California Regional Water Quality Control Board
San Diego Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/~rwqcb9/
9771 Clairemont Mesa Boulevard, Suite A, San Diego, California 92124-1324
Phone (858) 467-2952 • FAX (858) 571-6972

Gray Davis
Governor

June 20, 2000

Commanding General
U.S. Marine Corps Base, BLDG. 1106
Camp Pendleton, CA 92058-5010

Dear Commanding General,

RE: LAS PULGAS LANDFILL: GROUNDWATER INVESTIGATION

On April 6, 2000 the San Diego Regional Water Quality Control Board (RWQCB) sent a letter to U.S. Marine Corps Base (USMCB) Camp Pendleton requesting an evaluation of the following: 1) other potential sources for groundwater contamination; 2) background monitoring well contamination; and 3) natural attenuation as a viable remediation alternative for groundwater contamination at the Las Pulgas Landfill.

The letter requested the submittal of a technical report to this office by June 1, 2000, pursuant to Section 13267 of the California Water Code. The report was to include, but not be limited to, the information outlined in the United States Environmental Protection Agency's (USEPA's) guidance for the use of natural attenuation as a remediation alternative for contaminated sites (USEPA, 1999). On June 1, 2000 the RWQCB received a letter from USMCB Camp Pendleton. Staff has reviewed this letter, and found the information to be incomplete, not adequately addressing the issues presented in the RWQCB's April 6, 2000 letter.

The deficiencies identified by the RWQCB in your most recent submittal (June 1, 2000) include the following:

1. **Other Potential Sources of Groundwater Contamination**

   The USMC Facilities Maintenance Department (FMD) acknowledges finding evidence suggesting former use of the area in question. According to the USMC's June 1, 2000 letter, "Two activities did previously take place in this are: EOD training and unused medical waste disposal." It was also stated that these activities were previously unknown to FMD and were not discovered until after a fire occurred in the area in 1993. Based on this information, the RWQCB is not confident that the information provided by the FMD is conclusive regarding previous activities in this area.

2. **Background Well Evaluation**

   The RWQCB letter dated April 6, 2000 requested an evaluation of potential background well locations. This evaluation was to include the collection of groundwater samples

upgradient to the present well locations and areas of known contamination. Your response does not provide this requested evaluation.

3. **Detection Limits**

The RWQCB is concerned with the use of higher maximum detection limits (MDLs) in recent monitoring events, specifically in regards to the background monitoring well samples. For example, the MDL used for vinyl chloride in the 1999/2000 Annual Water Quality Monitoring Report (April, 2000), is 5 ug/l. The maximum concentration limit (MCL) for this constituent is 0.5 ug/l. Therefore, the use of 5 ug/l as the detection limit for this constituent is unreasonably high, and a non-detect reading would be interpreted as a concentration of 5ug/l for that sample. In order to provide the RWQCB with evidence that the constituents of concern are below MCLs, lower MDLs for groundwater analysis are required.

4. **Natural Attenuation**

In our April 6, 2000 letter staff requested specific information to be included in a technical report evaluating the effectiveness of natural attenuation as a remediation alternative for groundwater contamination, as outlined by the United States Environmental Protection Agency (USEPA), (see references). The USMC's response to this request was a discussion of the current groundwater contamination plumes, accompanied by several plume delineation maps. However, the accompanying maps appear to have revised contours for the same data. The discussion refers to reductive dechlorination of groundwater contaminants based on changes in plume dimensions when comparing recent plume dimensions with past plume dimensions. The USMC also refers to the Remedial Investigation and Feasibility Study (RIFS) submitted to this office in September 1996. The RWQCB has again reviewed the RIFS, and according to this report, "Under the maximum half-life scenario with a continuous source, vinyl chloride, and 1,4-dichlorobenzene plumes were predicted to attenuate to MCLs/MDLs in 42 years and 24 years, respectively, and within 500 feet and 100 feet respectively, of the existing front-edges of the plumes. The TCE plume is predicted to reduce to the MCL in 30 years and within 100 feet and to the MDL in 42 years and within 900 feet of the existing front-edge of the plume." The predicted extent of the resulting contaminant plumes does not demonstrate that natural attenuation is an effective remediation alternative.

In summary, the USMC's most recent submittal does not provide sufficient evidence supporting the effectiveness of natural attenuation as a remediation alternative for groundwater contamination at the Las Pulgas landfill. The USMC also has not submitted a revised/updated Evaluation Monitoring Program (EMP) report to this office, as requested in the RWQCB's April 6, 2000 letter. To rectify this situation, the RWQCB request the USMC undertake the following actions:

1. The RWQCB suggests that a comprehensive investigation/survey of the surrounding areas be completed to identify any other possible sources of contamination.

2. In order to demonstrate that groundwater contaminants are below the MCLs, especially in background monitoring wells, a lower MDL is required during lab analysis. The USMC should also submit a list of the contaminants of concern for review by the RWQCB, so water quality protection standards may be established for the Las Pulgas Landfill (California Code of Regulations (CCR), Title 27, Section 20390 & 20395).

Pursuant to Section 13267 of the California Water Code, the RWQCB requests the responsible parties submit the following:

A) A technical report assessing the effectiveness of natural attenuation as a remediation alternative to this office no later than **October 30, 2000**. The technical report should include, but not be limited to, the information outlined in the RWQCB's April 6, 2000 letter, and the USEPA's guidance document (see References).

B) A revised/updated Evaluation Monitoring Program report to this office no later than **October 30, 2000**. This report should be designed to comply with the CCR Title 27, Section 20425, and should include, but not be limited to, the evaluation of other possible sources of contamination, background water quality conditions, and incorporate the above-outlined evaluation of the effectiveness of natural attenuation as a remediation alternative for groundwater contamination.

If you have any questions regarding this letter, or require additional information, please contact Ms. Amy Fortin of my staff at (858) 637-7136.

Sincerely,

JOHN H. ROBERTUS
Executive Officer
San Diego Regional Water Quality Control Board

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References Cited:

1. United States Environmental Protection Agency, 1999. *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites,* OSWER Directive 9200.4-17P, Office of Solid Waste and Emergency Response, Washington D.C.

2. California Environmental Protection Agency, Regional Water Quality Control Board, Central Valley Region, 1998. A Compilation of Water Quality Goals.

cc: Office of the Assistant Chief of Staff
Environmental Security
Box 555010
Cam Pendleton, CA 92055-5010
Attn: Lupe Armas

Office of the Assistant Chief of Staff
Environmental Security
Box 555010
Camp Pendleton, CA 92055-5010
Attn: Ms. Theresa Trost, Solid Waste Branch

Ms. Michelle Stress
County of San Diego
Department of Environmental Health
Local Enforcement Agency
P.O. Box 129261
San Diego, CA 92112-9261